Patent claims:

1. A process for hydrogen peroxide plasma sterilization comprising:

(a) inserting at least one primary container containing a temperature-sensitive material into a sterilization treatment chamber;

(b) lowering the pressure in the treatment chamber to create a vacuum;

(c) injecting, at least one time, hydrogen peroxide into the chamber;

(d) lowering the pressure in the treatment chamber to reestablish a vacuum;

(e) generating a plasma; and

(f) ventilating the chamber;

wherein the chamber temperature is less than 39°C throughout the process.

2. The process of claim 1, wherein the pressure in step (b) is about 100 to 800 mtorr.

3. The process of claim 1, wherein step (c) is performed from between 1 and 60 minutes.

4. The process of claim 1, wherein prior to step (d) a hydrogen peroxide diffusion step is performed simultaneously with ventilation.

5. The process of claim 1, wherein prior to step (d) a hydrogen peroxide diffusion step is performed without ventilation.

6. The process of claim 4, wherein the hydrogen peroxide diffusion step is performed from between 1 and 60 minutes.

7. The process of claim 5, wherein the hydrogen peroxide diffusion step is performed from between 1 and 60 minutes.

8. The process of claim 1, wherein the temperature of the temperature-sensitive material does not rise above 40°C during the sterilization process.

9. The process of claim 1, wherein the temperature-sensitive material comprises biological materials.

10. The process of claim 9, wherein the biological materials are proteins, peptides, nucleic acids, lipids, or cellular materials.

11. The process of claim 9, wherein the biological material is a fibrogen containing solution.

12. The process of claim 9, wherein the biological material is a Factor XIII containing solution.

13. The process of claim 9, wherein the biological material is a thrombin containing solution.

14. The process of claim 9, wherein the biological material comprises the components of tissue glue.

15. The process of claim 9, wherein the biological material comprises the components of fibrin glue.

16. The process of claim 1, wherein the temperature-sensitive material comprises non-biological materials.

17. The process of claim 1, wherein the process is performed more than one time.

18. The process of claim 1, wherein before step (b), a preplasma step is performed comprising:

- lowering the pressure in the treatment chamber to create a vacuum;
- applying a preplasma; and
- ventilating the chamber.

19. The process of claim 18, wherein the pressure is about 100 to 800mtorr.

20. The process of claim 18, wherein the preplasma is applied for about 1 to 30 minutes.

21. The process of claim 18, wherein the ventilation step is no greater than 5 minutes.

22. The process of claim 1, wherein the primary container is enveloped at least one time with materials partially permeable to hydrogen peroxide.

23. The process of claim 1, wherein the primary container containing the temperature-sensitive material is placed in a secondary container.